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Effects of training on Cloud Computing Services on M-Learning Perceptions and Adequacies

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Abstract

Cloud system users are able to access documents, photos or other data and used applications through their terminal devices such as PDAs, smartphones, tablets, PCs etc. that are connected to the network. However, there is no study on what are the effects of cloud systems on mobile learning perceptions and adequacies. Therefore this study aims to pinpoint the conditions which affect students' perception and adequacies towards mobile learning using mainly cloud computing services. 50 students from the Computer Education and Instructional Technology Department (CEIT) all taking the lesson "Instructional Multimedia Development" participated in the study. Learners were trained in a computer laboratory before the study. At the beginning of the training "Mobile Learning Perception Scale" (MLPS) and "Mobile Learning Adequacy Scale" (MLAS) were applied to the students to determine perceptions and adequacies before the study. The course required learners to study in this environment to develop an instructional multimedia project. Course materials stored into the Dropbox. Other online materials' links were also added in the cloud computing software. Dropbox accounts were set up by the researcher. After 10 weeks questionnaires were applied again. According to the results students' mobile learning perceptions are significantly increase positively.

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1. Introduction

Information technology refers to something related computer technologies, such as hardware, software, cell phones, internet or the humans working with these technologies. Using of information technology, including computers, portable devices, computer games, and so on, most recently, on-the-go for recreational purposes, has increased (Bicen, Ozdamli and Uzunboylu, 2012; Kelleci, 2008). The internet which is a component of the modern life is used effectively in many aspects of the lives of the world's youth (Uzunboylu and Ozdamli, 2006; Ko, Yen, Yen, Chen and Wang 2008; Jitgarun and Tongsakul 2009; Tuncay and Uzunboylu, 2010). Erdemir, Bakirci and Eyduran (2009) indicated that one of using area of technology is an education in terms of the future society.

IPods, Tablets PCs, PDAs with wireless networks enables mobility and mobile learning, allowing teaching and learning to extend beyond the traditional classroom. At developed countries, todays' students engaging with their smartphones, connecting with instructors and classmates, and getting updates on teams and events—all with the tap of a finger. Within the classroom, mobile learning gives instructors and learners increased flexibility and new opportunities for interaction with students. Students are using mobile devices to manage their social, personal, and academic lives.Information between mobile devices and transfer between the different formats as well as their

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storage has seen significant improvements in technology. In addition mobile devices perform most operations to being simple and portable computers performed. M-learning is increasing in popularity, however not all students have mobile devices to support it (Ozdamli, 2011). Nevertheless Schepman et al. (2012) argued that cross-platform software that has the potential to allow instructors to provide mobile support to their students' learning, while offering same functionality to users which uses traditional computing platforms. With the cloud computing services it is enables to learners the possibility to achieve content from their mobile devices or desktop computers.

Aziz et al. (2012) indicated that cloud systems are future of the internet. Cloud system users are able to access documents, photos or other data and used applications through their terminal devices such as PDAs, smartphones, tablets, PCs etc. that are connected to the network. According to Cruz (2011) cloud computing provides an innovative alternative to traditional education, enabling individual learning environments, interactive learning and many to many learning. Also, allows learners to collaborate with their peers, regardless of geographical location.

Albion (2001) claimed that teachers' and learners' perceptions are a significant factor in their success at integrating technology. However, there is no study on what are the effects of cloud systems on mobile learning perceptions and adequacies. Therefore this study aims to pinpoint the conditions which affect students' perception and adequacies towards mobile learning using mainly cloud computing services.

2. Methodology

2.1. Participants

50 students from the Computer Education and Instructional Technology Department all taking the lesson "Instructional Multimedia Development" participated in the study.20 (40%) of the students were female and 30 (60%) were male; whose median age was 21.This selection was representative of the gender balance at the department. All participants have mobile device (mobile phone, tablet pc. etc.). While 90% (45) of the learners had Internet on their mobile devices, 5 (10%) didn't. However all learners could use the free wireless connection found in the campus. Also, all learners were free to use the PC version in addition to their mobile device.

2.2. Setting

Quantitative method was used in this study. The principles of constructivist approach were used in creating environment and the activities carried out during the study. This study, using cloud computing services was carried out at Near East University (NEU), Department of Computer Education and Instructional Technologies. M-learning was not a key feature of the university but the named instructional multimedia development course was processing using mobile devices. Students in study group attended courses face to face and used online environment. The course required learners to study in this environment to develop an instructional multimedia project. Course materials (course notes, visuals, texts, videos, sound, files and widgets) stored into the Dropbox. Other online materials' links were also added. Dropbox accounts were set up by the researcher. Researchers selected Dropbox because of Bicen and Ozdamli (2012) study resutls' showed that most of students prefer Dropbox cloud computing services the Education Faculty. Thanks to the Dropbox cloud computing services more than one student can individually or cooperatively carry out their tasks within the system. Dropbox application is available for Windows desktop, Mac and all mobile platforms. Users need only a single account and achieve account from all devices. It accounts for mobile and desktop are free with up to 18 GB of free space. Carey (2012) indicated that Dropbox users can use it to store and sync documents and files across computers, tablets, and smart phones.Students are free to work from their mobile phones, PDAs or desktop computers.

2.3. Application

Starting March 2012, learners were trained in a computer lab. At the beginning of the training "Mobile Learning Perception Scale" (MLPS) and "Mobile Learning Adequacy Scale" (MLAS) were applied to the students to determine perceptions and adequacies before the study. Each learner had an individually networked device which included a "Dropbox". Learners were shown how to use Dropbox features for their projects. The training took 60 minutes. The study was carried out in 10 weeks according to the blended learning approach. The learners enrolled in the course and the instructor communicated for 2 hours a week in a technology integrated class and, for the rest of the week, they communicated asynchronously and synchronously on the Internet. At the end of the study, students presented their projects. After the presentations students and instructors made evaluations and the questionnaires were applied to the students again."Mobile Learning Perception Scale" prepared byUzunboylu & Ozdamli (2011) (α=.95). The scale had two dimensions and was composed of 25 items. First dimension related to "advantages of m-learning" (13 items) and second dimension is related to "Appropriateness of use m-learning applications in courses" (12 items). Each question was scored on likert scale, where 5 point represented extremely positive perception.

To determine the adequacies of student's mobile learning, "the scale of the student's mobile learning adequacy" (α =0.891) developed by Uzunboylu & Ozdamli (2011) was used. The scale consists of 13 items with a Likert scale where 5 point represented extremelyadequately on mobile learning applications.

2.4. Data Collection Tools

"Mobile Learning Perception Scale" prepared by Uzunboylu & Ozdamli (2011) (α=.95). The scale had two dimensions and was composed of 25 items. First dimension related to "advantages of m-learning" (13 items) and second dimension is related to "Appropriateness of use m-learning applications in courses" (12 items). Each question was scored on likert scale, where 5 point represented extremely positive perception.

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3. Results

The results and the comments obtained through the aims of the research have been explained.

Perceptions towards mobile learning

The difference in mean scores was examined using a paired t-test analysis. The mean and SD values of learners' perceptions towards mobile learning are presented in the following table.

Table 1 Pre-test and Post-test results of students towards mobile learning

		N	Mean	SD	sd	t	P
Advantages of m-learning	Pre-test	50	3.45	.59	49	-6.178	.000
	Post-test	50	4.40	.25			
The appropriateness of use of m-learning applications in lessons	Pre-test	50	3.26	.57	49	-4.112	.000
	Post-test	50	4.05	.33			
General Average	Pre-test	50	3.35	.58	49	-5.356	.000
	Post-test	50	4.22	.29			

*Significant at the .05 level of confidence

According to Table 1 students' mobile learning perceptions are significantly increase positively (t=--5.356, p<.05). Students perception towards advantages of mobile learning was X=3.45 before the study and X=4.40 at post-test. So according to these results we can say that students' perceptions towards advantages were affected positively. "Mobile devices can be used everywhere" is the most accepted statement by the students both pre-test and post-test. Also Perceptions of students towards appropriateness of use of Dropbox cloud computing services in course activities has increased significantly (t=--4.112, p<.05). Most difference in the statement of "We can share our all course materials with our classmates through mobile applications"

Mobile learning adequacies of students

In order to find out whether or not there was any statistical difference before and after studying in cloud computing services Paired t-test were carried out. Results concerning students' M-learning Adequacy Scale is given in the table 2.

Table 2 Pre-test and Post-test results of students' mobile learning adequacies

		N	Mean	SD	sd	t	P
Adequacies	Pre-test	50	3.10	.79			
	Post-test	50	4.60	.65	49	-12.128	.000

From pre-test to post-test, the results revealed a significant gain in mobile learning adequacies (*t*-= 12.128,p<0.05). The students' adequacies post-test score (*M* = 4.60, *SD* =.65) was significantly higher than the pre-test score (*M* = 3.10, *SD* =.79). Students feel themselves least adequately with the pre-test mean score was *M*=3.16 for the statement of having video capture and sharing it through mobile device. After the study pos-test mean score for the same statement has increased to *M* =4.10.

4. Conclusion and Recommendation

The results were in a positive way in the study. This shows that using cloud computing services gives effective results in learning environments. According to results, we can say that the students benefited from the advantages and effectiveness these cloud computing services and mobile devices provided them during the term. Also, results demonstrate that cloud computing services affected positively students' perceptions and adequacies towards m-learning.

As in every study, there are a number of limitations attached to this research. The first limitation relates to the sample size of the study. Nevertheless, it is the authors' suggestion that any further research in this area should strive for larger sample sizes so that more elaborate analyses can be performed and the studies should be longitudinal.

It can be concluded that the cloud computing services enables to increase students' mobile learning perceptions and adequacies. Also, Dropbox cloud computing services might be useful for instructors interested in choosing a cloud computing services. The individuals who might be interested in using these environments are teachers, pre-service teachers, organizations such as universities, schools, institutions or who may be looking for a cloud computing environment that will satisfy the required criteria.

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